I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EV 532467901 an envelope addressed to: Commissioner for Pater Alexandria, Virginia 22313-1450, on the date show

ated: February 10, 2006 Signature: 🗶

Docket No.: 27866/39701

(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Joseph A. Beavo

Application No.: 10/697,894

Confirmation No.: 9227

Filed: October 30, 2003

Art Unit: 1652

For:

DNA ENCODING MAMMALIAN

Examiner: E. Slobodyansky

PHOSPHODIESTERASES

INFORMATION DISCLOSURE STATEMENT (IDS)

Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

In compliance with 37 C.F.R. §1.97 and the duty of disclosure under 37 C.F.R. §1.56, the attached form PTO-1449 is hereby submitted by Applicants for consideration in connection with the above-identified patent application. Pursuant to 37 C.F.R. §1.98(d), copies of the documents cited on the PTO-1449 form are not being provided because they were previously cited by or submitted to the Patent Office in related application U.S. Serial No. 09/883,825, from which priority is claimed under 35 U.S.C. §120. Should the Examiner desire additional copies of the documents, Applicants will provide them upon request. No fee is believed to be due under 37 C.F.R. §1.97(b) because this statement is

Application No.: 10/760,630 Docket No.: 01017/36370B

being submitted before receipt of a first Office Action on the merits. However, please charge any fees deemed necessary to Deposit Account 13-2855.

Dated: February 10, 2006

Respectfully submitted,

Katherine L. Neville

Registration No.: 53,379

MARSHALL, GERSTEIN & BORUN LLP

233 S. Wacker Drive, Suite 6300

Sears Tower

Chicago, Illinois 60606-6357

(312) 474-6300

Agent for Applicant

Form PTO-1449 (Modified)

Department of Commerce Patent and Trademark Office

Sheet 1 of 4
Serial No. Atty. Docket No. 27866/39701 10/697,894 Applicant Beavo et al.
Filing Date Group 1652

October 30, 2003

INFORMATION DISCLOSURE STATEMENT

U.S. PATENT DOCUMENTS							
*Examiner Initials		Document Number	Issue Date	Name	Class	Subclass	Filing Date if Appropriate

FOREIGN PATENT DOCUMENTS								
*Examiner Initials		Document Number	Publication Date	Country	Class	Subclass	Translation Yes	No

 		OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)
	C1	Ausubel, et al., eds., Current Protocols in Molecular Biology, 1: 1.7.1-1.7.2 and
		9.2.1-9.2.3, John Wiley & Sons, New York (1989)
	C2	Beavo, J.A., "Multiple Isozymes of Cyclic Nucleotide Phosphodiesterase," Advances
		in Second Messenger and Phosphoprotein Research, 22: 1-38 (1988)
	C3	Beavo, J.A., "Multiple Phosphodiesterase Isoenzymes Background, Nomenclature
		and Implications", pages 3-15; Cyclic Nucleotide Phosphodiesterases; Structure,
		Regulation and Drug Action, J. Beavo and Houslay, M.D., Eds.; John Wiley & Sond,
		Ltd., New York (1990)
	C4	Birnstiel, M.L., et al., "Transcription Termination and 3' Processing: The End Is in
		Sight!", Cell, 41: 349-359 (1985)
	C5	Bourne, H.R., et al., "Somatic Genetic Analysis of Cyclic AMP Action:
		Characterization of Unresponsive Mutants," J. Cell. Physiol., 85: 611-620 (1985)
	C6	Bradford, M.M., "A Rapid and Sensitive Method for the Quantitation of Microgram
		Quantities of Protein Utilizing the Principle of Protein-Dye Binding," Analytical
		Biochem., 72: 248-254 (1976)
	C7	Chen, C-N., et al., "Molecular Analysis of cDNA Clones and the Corresponding
		Genomic Coding Sequences of the <i>Drosophila</i> dunce ⁺ Gene, the Structural Gene for
		cAMP Phosphodiesterase," Proc. Nat'l. Acad. Sci. (USA), 83: 9313-9317 (1986)
	C8	Chomczynski, P., et al., "Single-Step Method of RNA Isolation by Acid
		Guanidinium Thiocyanate-Phenol-Chloroform Extraction," Analytical Biochem.,
		162: 156-159 (1987)
	C9	Colicelli, J., et al., "Isolation and Characterization of a Mammalian Gene Encoding a
		High-Affinity cAMP Phosphodiesterase," Proc. Nat'l. Acad. Sci. (USA), 86: 3599-
,		3603 (1989)
	C10	Davis, R.L., "Molecular Genetics of the Cyclic Nucleotide Phosphodiesterases",
		pages 227-241 in Cyclic Nucleotide Phosphodiesterases: Structure, Regulation and
		Drug Action, J. Beavo and Houslay, M.D., Eds.; John Wiley & Sons, Ltd., New York
		(1990)
	C11	Davis, R.L., et al., "Cloning and Characterization of Mammalian Homologs of the
		Drosophila dunce Gene, Proc. Nat'l. Acad. Sci. (USA), 86: 3604-3608 (1989)
	C12	Devereux, J., et al., "A Comprehensive Set of Sequence Analysis Programs for the

		VAX," Nucleic Acids Res., 12: 387-395 (1984)
	C13	Erneux, C., et al., "A Mechanism in the Control of Intracellular cAMP Level: The Activation of a Calmodulin-Sensitive Phosphodiesterase by a Rise of Intracellular
<u></u>	G1.4	Free Calcium," Mol. Cell. Endocranial., 43: 123-134 (1985)
	C14	Faure, M., et al., "Disruption of Dictyostelium discoideum Morphogenesis by Overproduction of cAMP Phosphodiesterase," Proc. Nat'l. Acad. Sci. (USA), 85: 8076-8080 (1988)
	C15	Feinberg, A.P., et al., "A Technique for Radiolabeling DNA Restriction Endonuclease Fragments to High Specific Activity," <i>Analytical Biochem.</i> , 137: 266-267 (1984)
	C16	Greenberg, L.H., et al., "Enzymatic Regulation of the Concentration of Cyclic GMP in Mouse Brain," Neuropharmacology, 17: 737-745 (1978)
	C17	Hansen, R.S., et al., "Differential Recognition of Calmodulin-Enzyme Complexes by a Conformation-Specific Anti-Calmodulin Monoclonal Antibody," J. Biol. Chem., 261: 14636-14645 (1986)
	C18	Hansen, R.S., et al., "Purification of Calmodulin-Stimulated Cyclic Nucleotide Phosphodiesterase by Monoclonal Antibody Affinity Chromatography," <i>Meth. Enzymol.</i> , 159: 543-557 (1988)
	C19	Hansen, R.S., et al., "Purification of Two Calcium/Calmodulin-Dependent Forms of Cyclic Nucleotide Phosphodiesterase by Using Conformation-Specific Monoclonal antibody Chromatography," Proc. Nat'l. Acad. Sci. (USA), 79: 2788-2792 (1982)
	C20	Hashimoto, Y., et al., "Regulation of Ca ²⁺ /Calmodulin-Dependent Cyclic Nucleotide Phosphodiesterase by the Autophosphorylated Form of Ca ²⁺ /Calmodulin-Dependent Protein Kinase II," J. Biol. Chem., 264: 10884-10887 (1989)
	C21	Henikoff, S., "Unidirectional Digestion with Exonuclease III Creates Targeted Breakpoints for DNA Sequencing," <i>Gene</i> , 28: 351-359 (1984)
	C22	Kincaid, R.L., et al., "Differential Localization of Calmodulin-Dependent Enzymes in Rat Brain: Evidence for Selective Expression of Cyclic Nucleotide Phosphodiesterase in Specific Neurons," Proc. Nat'l. Acad. Sci. (USA), 84: 1118-1122 (1987)
-	C23	Kozak, M., "The Scanning Model for Translation: An Update," J. Cell Biol., 108: 229-241 (1989)
	C24	Krinks, M.H., et al., "Reversible and Irreversible Activation of Cyclic Nucleotide Phosphodiesterase: Separation of the Regulatory and Catalytic Domains by Limited Proteolysis," Advances in Cyclic Nucleotide and Protein Phosphorylation Research, 16: 31-47 (1984)
	C25	LaPorte, D.C., et al., "Cross-Linking of Iodine-125-Labeled, Calcium-Dependent Regulatory Protein to the Ca ²⁺ -Sensitive Phosphodiesterase Purified from Bovine Heart," <i>Biochemistry</i> , 18: 2820-2825 (1979)
	C26	LeTrong, H., et al., "Amino Acid Sequence of the Cyclic GMP Stimulated Cyclic Nucleotide Phosphodiesterase from Bovine Heart," Biochemistry, 29: 10280-10288 (1990)
	C27	Livi, G.P., et al., "Cloning and Expression of cDNA for a Human Low-K _m Rolipram-Sensitive Cyclic AMP Phosphodiesterase," Mol. Cell. Biol., 10: 2678-2686 (1990)
	C28	Manganiello, V.C., et al., "Cyclic GMP-Stimulated Cyclic Nucleotide Phosphodiesterases", pages 62-85 in Cyclic Nucleotide Phosphodiesterases: Structure, Regulation and Drug Action, Beavo, J. and Houslay, M.D., Eds.; John Wiley & Sons, Ltd., New York (1990)
	C29	Maniatis, et al., Molecular Cloning: A Laboratory Manual, pp 324-328, Cold Spring

.

		Harbor Laboratory, Cold Spring Harbor, New York (1982)
·	C30	Martins, T.J., et al., "Purification and Characterization of a Cyclic GMP-Stimulated
		Cyclic Nucleotide Phosphodiesterase from Bovine Tissues," J. Biol. Chem., 257:
		1973-1979 (1982)
· · · · · · · · · · · · · · · · · · ·	C31	Nikawa, J-I., et al., "Cloning and Characterization of the Low-Affinity Cyclic AMP
	CJI	Phosphodiesterase Gene of Saccharomyces cerevisiae," Mol. Cell. Biol., 7: 3629-
		3636 (1987)
	C32	Nomenclature Committee of the International Union of Biochemistry (NCIUB),
	C32	"Nomenclature for Incompletely Specified Bases in Nucleic Acid Sequences," J.
	1	1
	G22	Biol. Chem., 261:13-17 (1986)
	C33	Novack, J.P., et al., "Sequence Comparison of the 63-, 61-, and 59-kDa Calmodulin-
		Dependent Cyclic Nucleotide Phosphodiesterases," <i>Biochemistry</i> , 30: 7940-7947
		(1991)
	-C34	Ovchinnikov, Y.A., et al., "Cyclic GMP Phosphodiesterase from Bovine Retina,"
	ŀ	FEBS, 223: 169-173 (1987)
	C35	Sanger, F., et al., "DNA Sequencing with Chain-Terminating Inhibitors," Proc.
		Nat'l. Acad. Sci. (USA), 74: 5463-5467 (1977)
	C36	Sass, P., et al., "Cloning and Characterization of the HIgh-Affinity cAMP
		Phosphodiesterase of Saccharomyces cerevisiae," Proc. Nat'l. Acad. Sci. (USA), 83:
		9303-9307 (1986)
	C37	Seed, B., "An LFA-3 cDNA encodes a Phospholipid-Linked Membrane Protein
		Homologous to Its Receptor CD2," Nature, 329: 840-842 (1987)
	C38	Sharma, R.K., et al., "Demonstration of Bovine Brain Calmodulin-Dependent Cyclic
	050	Nucleotide Phosphodiesterase Isozymes by Monoclonal Antibodies," J. Biol. Chem.,
		259: 9248-9254 (1984)
	C39	Sharma, R.K., et al., "Differential Regulation of Bovine Brain Calmodulin-
		Dependent Cyclic Nucleotide Phosphodiesterase Isozymes by Cyclic AMP-
		Dependent Protein Kinase and Calmodulin-Dependent Phosphatase," <i>Proc. Nat'l.</i>
		Acad. Sci. (USA), 82: 2603-2607 (1985)
	C40	Sharma, R.K., et al., "Purification and Characterization of Bovine Lung Calmodulin-
	C40	Dependent Cyclic Nucleotide Phosphodiesterase," J. Biol. Chem., 261: 14160-14166
		(1986)
	041	
	C41	Sherman, et al., Methods in Yeast Genetics, Cold Spring Harbor Laboratory, Cold
	 	Spring Harbor, New York (1986)
	C42	Short, M., et al., "ZAP: A Bacteriophage λ Expression Vector with in vivo Excision
		Properties," Nucleic Acids Res., 16: 7583-7600 (1988)
	C43	Sonnenburg, W.K., et al., "Molecular Cloning of a Cyclic GMP-Stimulated Cyclic
		Nucleotide Phosphodiesterase cDNA," J. Biol. Chem., 266(26): 17655-17661 (1991)
	C44	Stroop, S.D., et al., "Direct Photolabeling of the cGMP-Stimulated Cyclic Nucleotide
		Phosphodiesterase," J. Biol. Chem., 264: 13718-13725 (1989)
	C45	Swinnen, J.V., et al., "Molecular Cloning of Rat Homologous of the Drosophila
		melanogaster dunce cAMP Phosphodiesterase: Evidence for a Family of Genes,"
		Proc. Nat'l. Acad. Sci. (USA), 86: 5325-5329 (1989)
****	C46	Tanner, L.I., et al., "Identification of the Phosphodiesterase Regulated by Muscarinic
	040	Cholinergic Receptors of the 1321N1 Human Astrocytoma Cells," Mol. Pharmacol.,
		29: 455-460 (1986)
	C47	Thompson, W.J., et al., "Identification of Type II (Cyclic GMP-Stimulatable) Cyclic
	(4/	Nucleotide Phosphodiesterase (CNPDE) mRNA in Rat Pheochromocytoma Cells
	1	(PC12)," FASEB J., 5(6): A1592 (Abstract No. 7092) (March 1991)

. .

C48	Wang, J.H., et al., "Calmodulin-Stimulated Cyclic Nucleotide Phosphodiesterases", pp. 19-59; in Cyclic Nucleotide Phosphodiesterases: Structure, Regulation and Drug Action, Beavo, J. and Houslay, M.D., Eds.; John Wiley & Sons, Ltd., New York (1990)
C49	Watson, et al., "An Alternative Procedure for the Synthesis of Double-Stranded cDNA for Cloning in Phage and Plasmid Vectors," pp. 79-88; in DNA Cloning: A Practical Approach, 1 (1985)
C50	Wilson, R.B., et al., "SRA5 Encodes the Low-K _M Cyclic AMP Phosphodiesterase of Saccharomyces cerevisiae," Mol. Cell. Biol., 8: 505-510 (1988)
C51	Charbonneau, H., et al., "Identification of a conserved domain among cyclic nucleotide phosphodiesterases from diverse species," Proc. Nat'l. Acad. Sci. (USA), 83: 9308-9312 (1986)
C52	Trong, H. L., et al., "Amino Acid Sequence of the Cyclic GMP Stimulated Cyclic Nucleotide Phosphodiesterase from Bovine Heart," <i>Biochemistry</i> 1990, 29: 10280-10288
C53	Epstein, P.M. et al., "Identification and characterization of a Ca2+ -calmodulin-sensitive cyclic nucleotide phosphodiesterase in a human lymphoblastoid cell line," <i>Biochem. J.</i> , 243:533-539 (1987).
C54	Pennypacker, K.R. et al., "Expression of Calmodulin-Dependent Phosphodiesterase Calmodulin-Dependent Protein Phosphatase, and Other Calmodulin-Binding Proteins in Human SMS-KCNR Neuroblastoma Cells," <i>Journal of Neurochemistry</i> , 52(5):1438-1448 (1989).
C55	Hurwitz, R.L. et al. "Induction of a Calcium/Calmodulin-dependent Phosphodiesterase during Phytohemagglutinin-stimulated Lymphocyte Mitogenesis", J. Biol. Chem., 265(15):8901-8907 (1990).
C56	Lerner, Richard L. "Tapping the immunological repertoire to produce antibodies of predetermined specificity", <i>Nature</i> 299(14) 592-596 (1987)

Examiner	Date Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.